REMARKS

The Applicants and the undersigned thank Examiner Bello for his careful review of this application. The Applicants especially thanks Examiner Bello for his time and consideration given during the telephonic interview of June 18, 2007. A summary of this telephonic interview is provided below.

Upon entry of this amendment, Claims 6 and 14 have been cancelled and Claims 1-5, 7-13, and 15-75 remain pending in this application. The twelve independent claims are Claims 1, 9, 16, 26, 34, 41, 48, 54, 61, 65, 69, and 72.

Consideration of the present application is respectfully requested in light of the above claim amendments to the application, the telephonic interview, and in view of the following remarks.

Summary of Telephonic Interview of June 18, 2007

The Applicants and the undersigned thank Examiner Bello for his time and consideration given during the telephonic interview of June 18, 2007. During this telephonic interview, a proposed amendment to the claims was discussed. The Applicants provided the proposed amendment to the claims in advance of the interview.

The Applicants' representative explained to Examiner Bello that the prior art of record does not provide any teaching of a combination elements that includes modulating a first analog optical carrier having a first wavelength with a first electrical, analog broadcast radio-frequency signal; modulating a second analog optical carrier having a second wavelength with a second, analog electrical broadcast radio-frequency signal; and modulating a digital optical carrier having a third wavelength with a digital data signal; and combining all of these optical signals near the end of the optical network system in a single optical waveguide that supports a subscriber; OR

a combination, according to another embodiment, of modulating an analog optical carrier having a first wavelength with first and second electrical, analog broadcast radio-frequency signals; modulating a digital optical carrier having a second wavelength with a digital data signal; and combining all of these optical signals near the end of the optical network system in a single optical waveguide that supports a subscriber.

The Applicants' representative explained how the prior art of record may provide an analog optical carrier for analog broadcast radio-frequency signals and a digital optical carrier for digital data signals, such as the signals labeled "AM-VSB, EPPV" and "SWITCHED" in Figure 1 of U.S. Pat. No. 5,528,582 issued in the name of Bodeep (hereinafter, the "Bodeep reference").

However, it was explained that the prior art of record does not teach at least two analog optical carriers or an analog carrier that supports two different electrical analog broadcast radio-frequency signals in combination with a digital optical carrier for digital data. Such a combination can support signals from at least two different service providers of broadcast radio-frequency signals.

After listening to the Applicants' representative, Examiner Bello provided a few suggestions to the claims. Specifically, Examiner Bello suggested that the Applicants amend the claims to recite that the two broadcast radio-frequency signals originate from at least two different service providers. The Applicants' representative agreed to those suggestions and they have been adopted in this paper.

Examiner Bello expressed that he understood the Applicants' representative comments and the concepts presented by the amended claims. Examiner Bello indicated that an update search would be conducted after the Applicants submits the claims in a formal amendment.

The Applicants and the undersigned request Examiner Bello to review this interview summary and to approve it by writing "Interview Record OK" along with his initials and the date next to this summary in the margin as discussed in MPEP § 713.04, p. 700-202.

Claim Rejections under 35 U.S.C. §112, second paragraph

The Examiner rejected Claims 1-8 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicants regard as the invention. The Applicants respectfully offer remarks to traverse these pending rejections.

The Examiner explained that several terms in original Claim 1 lacked proper antecedent basis and were unclear.

The Applicants have amended the claims in light of the Examiner's helpful comments. Reconsideration and withdrawal of the rejection under 35 U.S.C. § 112, second paragraph are respectfully requested.

Claim Rejections Under 35 U.S.C. § 103

Claims 1-3, 8-11, 16-20, 24-29, 34-38, 41-45, 48-49, 51, 54-56, 58, 61-63, 65-67, 69-70, 72-73, and 75 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Bodeep reference in view of U.S. Patent No. 7,007,297 issued in the name of Woodward (hereinafter, the "Woodward reference").

Claims 4, 5, 12-13, 20-21, 30-31, 50, 57, 64, 68, and 71 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Bodeep reference in view of the Woodward reference, as applied to claim 1 above, and further view of U.S. Patent No. 6,687,432 issued in the name of Schemmann et al. (hereinafter, the "Schemmann reference").

Claims 6, 14, 22, 32, 39, 46, 52, and 59 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Bodeep reference in view of the Woodward reference, as applied to Claim 1 above, and further in view of U.S. Patent No. 5,694,232 issued in the name of Parsay et al. (hereinafter, the "Parsay reference").

Claims 7, 15, 23, 33, 40, 47, 53, 60 and 74 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bodeep reference in view of Woodward reference, as applied to Claim 1 above, and further in view of U.S. Patent No. 5,867,485 issued in the name of Chambers et al. (hereinafter, the "Chambers reference").

The Applicants respectfully offer remarks to traverse these pending rejections. The Applicants will address each independent claim separately as the Applicants believe that each independent claim is separately patentable over the prior art of record.

Independent Claim 1

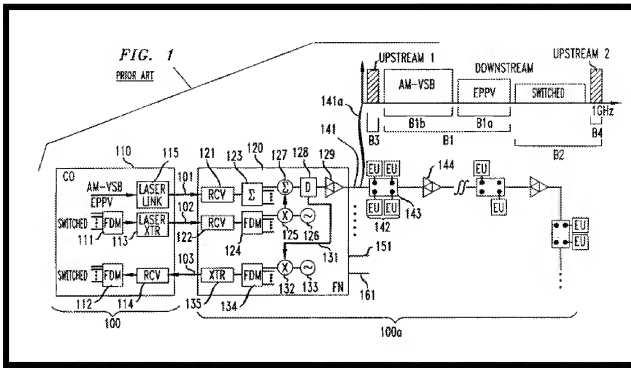
It is respectfully submitted that the Bodeep, Woodward, Schemmann, Parsay, and Chambers references, individually or in view of each other, fail to describe, teach, or suggest the combination of: (1) a data service hub comprising: (1a) a first optical transmitter for modulating a (1b) first analog optical carrier (1c) having a first wavelength with a (1d) first electrical, analog broadcast radio-frequency signal of (1d) a first service provider; (1e) a second optical transmitter

for modulating a (1f) second analog optical carrier (1g) having a second wavelength with (1h) a second, analog electrical broadcast radio-frequency signal of (1i) a second service provider; (1j) a third optical transmitter for modulating (1k) a digital optical carrier (1l) having a third wavelength with (1m) a digital data signal; (2) a first optical waveguide coupled to the data service hub and (3) a laser transceiver node for receiving the first analog optical carrier and propagating it to the laser transceiver node; (4) a second optical waveguide coupled to the data service hub and the laser transceiver node for receiving the second analog optical carrier and propagating it to the laser transceiver node; (5) a third optical waveguide coupled to the data service hub and the laser transceiver node for receiving the digital optical carrier and propagating it to the laser transceiver node, the laser transceiver node comprising a (6) first combiner for mixing the first and second analog optical carriers and a (7) second combiner for mixing the digital optical carrier with the combined first and second analog optical carriers; (8) a fourth optical waveguide coupled to the laser transceiver node and (9) a subscriber optical interface for receiving the combined first and second analog optical carriers and digital optical carrier and propagating them to the subscriber optical interface; and the subscriber optical interface comprising (10) a service provider selection device for selecting one of the analog optical carriers, as recited in amended independent Claim 1.

The Bodeep Reference

Figure 1 of the Bodeep reference illustrates a fiber/coax network (FCN) proposal for a two-way broadband network. The figure shows a head-end or telephone switching network 100 which connects via optical fibers 101-103 to a coaxial cable distribution network 100a. The telephone switching network 100 includes central office (CO) 110 which couples switched ("SWITCHED") signals (such as telephone, fax, data, etc.) via frequency-division multiplexing (FDM) unit 111 to transmitter laser 113 for transmission over optical fiber 102.

Laser transmitter 113 may or may not be the same laser 115 as used for transmitting other broadcast information, such as multiple CATV channels (AM-VSB) or enhanced pay-per-view (EPPV) channels. Digital EPPV signals can be transmitted in groups using FDM and digital modem technology. Bodeep reference, col. 2, lines 53-68.



The switched signal outputted from FDM 124 is frequency-shifted using mixer 125 and local oscillator 126 to a pre-assigned frequency and combined with the broadcast signal from splitter 123 in combiner 127 for transmission over coaxial cable 141. On coaxial cable 141, as shown by 141a, the CATV broadcast services use the AM-VSB band B1b and the EPPV channels use band B1a, for example, of the 55.25 MHz-500 MHz frequency band B1. The switched services use the frequency band B2, which, in this example, is greater than 500 MHz and less than 1 GHz. FDM 124 could be replaced with a splitter and frequency-shifting components 125 and 126 could be eliminated if the same switched information were to be transmitted on each coaxial cable 141, 151 and 161. Bodeep reference, col. 3, lines 17-31.

Examiner Bello points out that the Bodeep reference does describe an all optical network in which all of the coaxial cable in Figure 1 can be replaced with fiber optic cable. Bodeep reference col. 9, lines 58-66.

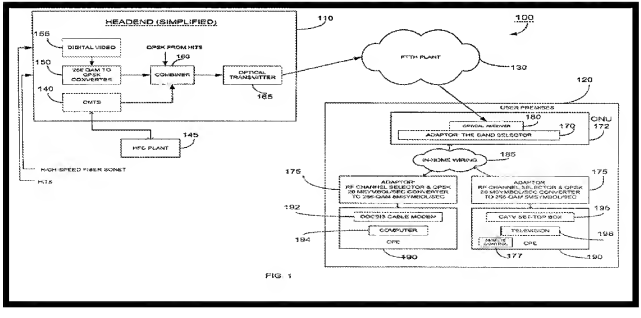
Examiner Bello admits that the Bodeep reference does not teach any of the following claimed elements: (a) a subscriber optical interface that comprises a service provider selection device for selecting one of the analog optical carriers; (b) the service provider selection device comprises an optical filter; (c) a laser transceiver node that comprises a wave division multiplexer for combining optical signals; (d) an optical diplexer for mixing first and second

analog optical carriers together with a digital optical carrier; and (e) an optical diplexer for separating first and second analog optical carriers from a digital optical carrier.

In addition to these deficiencies of the Bodeep reference noted by the Examiner, the Applicants point out that the Bodeep reference further fails to provide any teaching of a combination that includes (1a) a first optical transmitter for modulating a (1b) first analog optical carrier (1c) having a first wavelength with a (1d) first electrical, analog broadcast radio-frequency signal of (1d) a first service provider; (1e) a second optical transmitter for modulating a (1f) second analog optical carrier (1g) having a second wavelength with (1h) a second, analog electrical broadcast radio-frequency signal of (1i) a second service provider; and (1j) a third optical transmitter for modulating (1k) a digital optical carrier (1l) having a third wavelength with (1m) a digital data signal.

The Woodward Reference

To make up for the service provider selection device deficiency of the Bodeep reference, the Examiner relies on the Woodward reference. The Woodward reference describes a user premises 120 in Figure 1 that includes and adaptor 170 for selecting a channel and adaptor 175 for converting signals received on the channel to a format usable by coupled customer premise equipment (CPE). Optical receiver 180 receives signals from the head-end (HE) 110 via fiber-to-the-home (FTTH) 130. Adaptor 170, receiving signals from optical receiver 180, includes a band selector for selecting a particular channel for transmission to CPE 190 via in-home wiring 185.



For example, bandwidth on FTTH systems is virtually unlimited, and a user may wish to receive signals, such as desired digital video or data, transmitted on a particular channel. The band selector can be used to select a channel or band of channels carrying the desired digital video or data. Therefore, in-home wiring 185 will not need to support the full bandwidth of the optical signal, and not all of the incoming signal will need to be converted into a CATV format (e.g., 256-QAM). Optical receiver 180 and adaptor 170 may be included in optical network unit 172 connected to or included in user premises 120. Woodward reference, col. 4, line 53 - col. 5, line 3.

However, like the Bodeep reference, the Woodward reference does not provide for any teaching of a combination that includes (1a) a first optical transmitter for modulating a (1b) first analog optical carrier (1c) having a first wavelength with a (1d) first electrical, analog broadcast radio-frequency signal of (1d) a first service provider; (1e) a second optical transmitter for modulating a (1f) second analog optical carrier (1g) having a second wavelength with (1h) a second, analog electrical broadcast radio-frequency signal of (1i) a second service provider; and (1j) a third optical transmitter for modulating (1k) a digital optical carrier (1l) having a third wavelength with (1m) a digital data signal.

The Schemmann Reference

To make up for the optical filter deficiency of the service provider selection device for the combined teachings of the Bodeep and Woodward references, the Examiner relies upon the Schemmann reference. The Schemmann reference illustrates a hub 340 in Figure 4 (provided below) connected to local nodes 341-343. The hub includes a common wavelength division multiplexer/demultiplexer (WDMD) 345 for communication through a common fiber to the head-end. The common WDMD communicates with respective WDMD's 346-347 for each local node connected to the hub.

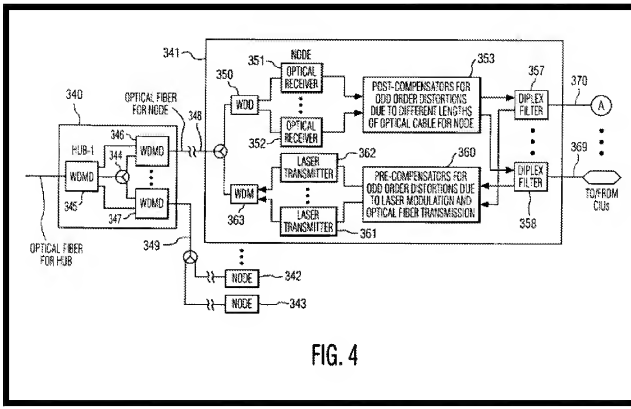


FIG. 4

Local nodes 341-343 may be identical, but relevant details are only shown for local node 341 for simplicity of drawing and description. Local node 341 includes a wavelength division demultiplexer (WDD) 350 for the local node. WDD 350 separates optical signals according to light wavelength. The separated optical signals are routed to optical receivers 351-352 which convert the optical signals to forward electronic signals. The forward electronic signals are routed to post-compensators 353 which linearize the forward electronic signals to compensate for differences in the length of transmission through optical fibers for different local nodes. The forward electronic signals are then transmitted through coaxial cable tree networks (369-370) to customer interface units. Col. 9, lines 14-33.

Examiner Bello relies on the wavelength division demultiplexer (WDD) 350 of the Schemmann reference to address the optical filter deficiency for the service provider selection device of the combined teachings of the Bodeep and Woodward references. However, like the Bodeep and Woodward references, the Schemmann reference does not provide for any teaching of a combination that includes (1a) a first optical transmitter for modulating a (1b) first analog optical carrier (1c) having a first wavelength with a (1d) first electrical, analog broadcast radio-frequency signal of (1d) a first service provider; (1e) a second optical transmitter for modulating

a (1f) second analog optical carrier (1g) having a second wavelength with (1h) a second, analog electrical broadcast radio-frequency signal of (1i) a second service provider; and (1j) a third optical transmitter for modulating (1k) a digital optical carrier (1l) having a third wavelength with (1m) a digital data signal.

The Parsay Reference

To make up for the deficiency of using an optical diplexer for mixing first and second analog optical signals of the combined teachings of the Bodeep and Woodward references, the Examiner relies upon the Parsay reference. The Parsay reference in Figure 3 illustrates a fiber transmitter module (FTM 52), wherein the outgoing encoded digital signal 76 is used to digitally modulate an RF carrier signal by an FSK modulation circuit 75, e.g., with an FSK modulation frequency of approximately 2.5 MHz (digital "zero") and 3.6 MHz (digital "one"), respectively. The resulting digitally modulated RF carrier signal 85 is then combined in a diplexer circuit 86 with the plurality of independent analog RF signals 54 or 56, respectively, to form a plurality of outgoing RF signals 87.

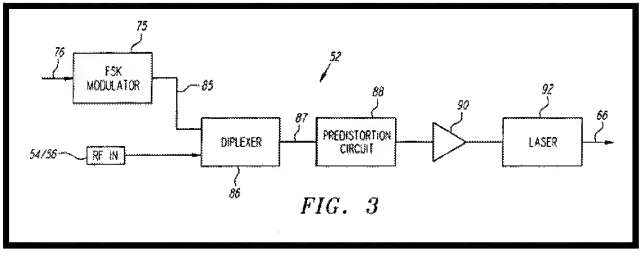


FIG. 3

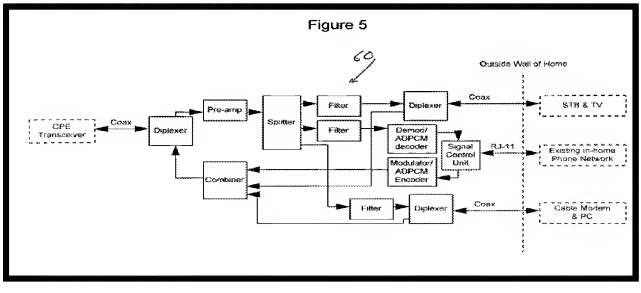
The combined outgoing RF signals 87 are passed through a predistortion circuit 88 and amplifier 90. The combined outgoing RF signals 87 are then used to modulate an optical laser 92, resulting in an single, RF modulated optical signal, which is transmitted, via optical feeder line 66 and WDM 70, respectively, over the fiber link 48. Parsay reference, col. 7, line 64 through col. 8, line 17.

The Applicants respectfully submit that Figure 3 (above) of the Parsay reference illustrates an electrical diplexer and not a diplexer that can combine optical signals as claimed. Further, like the Bodeep and Woodward references, the Parsay reference does not provide for any teaching of a combination that includes (1a) a first optical transmitter for modulating a (1b) first analog optical carrier (1c) having a first wavelength with a (1d) first electrical, analog broadcast radio-frequency signal of (1d) a first service provider; (1e) a second optical transmitter for modulating a (1f) second analog optical carrier (1g) having a second wavelength with (1h) a second, analog electrical broadcast radio-frequency signal of (1i) a second service provider; and (1j) a third optical transmitter for modulating (1k) a digital optical carrier (1l) having a third wavelength with (1m) a digital data signal.

The Chambers Reference

To make up for the deficiency of using an optical diplexer for separating first and second analog optical carriers from a digital optical carrier of the combined teachings of the Bodeep and Woodward references, the Examiner relies upon the Chambers reference. The Chambers reference in Figure 5 illustrates an electrical signal received at the customer premise equipment (CPE) Transceiver that is downconverted and sent via coax to the network interface unit (NIU) 60. The NIU 60 sends the electrical signal through a diplexer where the upstream and downstream signals are isolated and combined on a single coax. The output of the diplexer (downstream) is coupled to a pre-amp (if necessary) and then into a splitter that breaks the signal into three equivalent full spectrum outputs.

Figure 5



The outputs of the splitter feed individual IF bandpass filters that reject all but the desired signals for the given service. At this point, the video signals are once again sent through a diplexer (for upstream/downstream separation) and feed a digital set top box via existing coax distribution cable. Likewise the data traffic goes through a diplexer where it feeds a cable modem which in turn is connected to a PC for high speed data applications, i.e. internet, at home banking, etc. Chambers reference, col. 8, lines 22 - 38.

The Applicants respectfully submit that the diplexer referenced in Figure 5 of the Chambers reference is an electrical diplexer and not an optical one. Further, like the Bodeep and Woodward references, the Chambers reference does not provide for any teaching of a combination that includes (1a) a first optical transmitter for modulating a (1b) first analog optical carrier (1c) having a first wavelength with a (1d) first electrical, analog broadcast radio-frequency signal of (1d) a first service provider; (1e) a second optical transmitter for modulating a (1f) second analog optical carrier (1g) having a second wavelength with (1h) a second, analog electrical broadcast radio-frequency signal of (1i) a second service provider; and (1j) a third optical transmitter for modulating (1k) a digital optical carrier (1l) having a third wavelength with (1m) a digital data signal.

Conclusion Regarding Independent Claim 1

In light of the differences between Claim 1 and the Bodeep, Woodward, Schemmann, Parsay, and Chambers references, individually or in view of each other, one of ordinary skill in the art recognizes that the combination proposed by the Examiner cannot anticipate or render obvious the recitations as set forth in amended independent Claim 1. Accordingly, consideration and allowance of amended independent Claim 1 are respectfully requested.

Independent Claim 9

It is respectfully submitted that the Bodeep, Woodward, Schemmann, Parsay, and Chambers references, individually or in view of each other, fail to describe, teach, or suggest the combination of: (1) modulating (2) a first analog optical carrier (3) having a first wavelength with a (4) first electrical, analog broadcast radio-frequency signal (5) at a data service hub (6) from a first service provider; (7) modulating a (8) second analog optical carrier (9) having a second wavelength (10) with a second electrical, analog broadcast radio-frequency signal (10) at

the data service hub (11) from a second service provider; (12) modulating a digital optical carrier (13) having a third wavelength with (14) digital data signal (15) at the data service hub; (16) propagating the first and second analog optical carriers and digital optical carrier through separate optical waveguides away from the data service hub; (17) combining the first and second analog optical carriers and the digital optical carrier; (18) propagating the first and second analog optical carriers and digital optical carrier through one optical waveguide towards a subscriber; and (19) selecting one of the analog optical carriers at a subscriber optical interface, as recited in amended independent Claim 9.

Similar to amended Claim 1, Claim 9 describes a combination that includes (1) modulating (2) a first analog optical carrier (3) having a first wavelength with a (4) first electrical, analog broadcast radio-frequency signal (5) at a data service hub (6) from a first service provider; (7) modulating a (8) second analog optical carrier (9) having a second wavelength (10) with a second electrical, analog broadcast radio-frequency signal (10) at the data service hub (11) from a second service provider; (12) modulating a digital optical carrier (13) having a third wavelength with (14) digital data signal (15) at the data service hub. As noted above, none of the prior art references relied upon by the Examiner teach multiple service providers for modulating separate analog optical carriers in combination with a separate optical carrier for digital data.

In light of the differences between Claim 9 and the Bodeep, Woodward, Schemmann, Parsay, and Chambers references mentioned above, one of ordinary skill in the art recognizes that the combination proposed by the Examiner cannot anticipate or render obvious the recitations as set forth in amended independent Claim 9. Accordingly, consideration and allowance of amended independent Claim 9 are respectfully requested.

Independent Claim 16

It is respectfully submitted that the Bodeep, Woodward, Schemmann, Parsay, and Chambers references, individually or in view of each other, fail to describe, teach, or suggest the combination of: (1) a data service hub comprising: (1a) a first optical transmitter (1b) for modulating a first analog optical carrier (1c) having a first wavelength with (1d) a first electrical, analog broadcast radio-frequency signal (1e) of a first service provider; (1f) a block converter for translating a frequency range of (1g) a second electrical, analog broadcast radio-frequency signal

(1h) of a second service provider; (1i) a second optical transmitter for modulating (1j) a second analog optical carrier (1k) having a second wavelength with the (1l) second electrical, analog broadcast radio-frequency signal; (1m) a combiner for mixing the first and second analog optical carriers; (1n) a first optical waveguide for communicating the first and second analog optical carriers to a node; (1o) a third optical transmitter for modulating (1p) a digital optical carrier (1q) having a third wavelength (1r) with a digital data signal; (2) a second optical waveguide coupled to the data service hub and the laser transceiver node (3) for receiving the digital optical carrier and propagating it to the node; and (4) a subscriber optical interface coupled to the node and comprising (5) a service provider selection device (6) for selecting one of the analog optical carriers, as recited in amended independent Claim 16.

Similar to amended Claim 1, Claim 16 describes a combination that includes (1a) a first optical transmitter (1b) for modulating a first analog optical carrier (1c) having a first wavelength with (1d) a first electrical, analog broadcast radio-frequency signal (1e) of a first service provider; (1i) a second optical transmitter for modulating (1j) a second analog optical carrier (1k) having a second wavelength with a (1l) second electrical, analog broadcast radio-frequency signal of a second service provider; and (1o) a third optical transmitter for modulating (1p) a digital optical carrier (1q) having a third wavelength (1r) with a digital data signal. As noted above, none of the prior art references relied upon by the Examiner teach multiple service providers for modulating separate analog optical carriers in combination with a separate optical carrier for digital data.

In light of the differences between Claim 16 and the Bodeep, Woodward, Schemmann, Parsay, and Chambers references mentioned above, one of ordinary skill in the art recognizes that the combination proposed by the Examiner cannot anticipate or render obvious the recitations as set forth in amended independent Claim 16. Accordingly, consideration and allowance of amended independent Claim 16 are respectfully requested.

Independent Claim 26

It is respectfully submitted that the Bodeep, Woodward, Schemmann, Parsay, and Chambers references, individually or in view of each other, fail to describe, teach, or suggest the combination of: (1) modulating a first analog optical carrier (2) having a first wavelength (3) with a first electrical, analog broadcast radio-frequency signal (4) of a first service provider (5) at

a data service hub; (6) translating a frequency range of a second electrical, analog broadcast radio-frequency signal (7) of a second service provider; (8) modulating a second analog optical carrier (9) having a second wavelength (10) with the second electrical, analog broadcast radio-frequency signal (11) at the data service hub; (12) combining the first and second analog optical carriers (13) at the data service hub; (14) propagating the first and second analog optical carriers through (15) a first optical waveguide (16) towards a subscriber; (17) modulating a digital optical carrier (18) having a third wavelength (19) with a digital data signal (20) at the data service hub; (21) propagating the digital optical carrier (22) through a second optical waveguide (23) towards a subscriber; and (24) selecting one of the analog optical carriers (25) at a subscriber optical interface, as recited in amended independent Claim 26.

Similar to amended Claim 1, Claim 26 describes a combination that includes (1) modulating a first analog optical carrier (2) having a first wavelength (3) with a first electrical, analog broadcast radio-frequency signal (4) of a first service provider (5) at a data service hub; (8) modulating a second analog optical carrier (9) having a second wavelength (10) with the second electrical, analog broadcast radio-frequency signal (11) of the second service provider at the data service hub; and (17) modulating a digital optical carrier (18) having a third wavelength (19) with a digital data signal (20) at the data service hub. As noted above, none of the prior art references relied upon by the Examiner teach multiple service providers for modulating separate analog optical carriers in combination with a separate optical carrier for digital data.

In light of the differences between Claim 26 and the Bodeep, Woodward, Schemmann, Parsay, and Chambers references mentioned above, one of ordinary skill in the art recognizes that the combination proposed by the Examiner cannot anticipate or render obvious the recitations as set forth in amended independent Claim 26. Accordingly, consideration and allowance of amended independent Claim 26 are respectfully requested.

Independent Claim 34

It is respectfully submitted that the Bodeep, Woodward, Schemmann, Parsay, and Chambers references, individually or in view of each other, fail to describe, teach, or suggest the combination of: (1) a data service hub comprising: (1a) a block converter for translating a frequency range (1b) of a first electrical, analog broadcast radio-frequency signal (1c) of a first service provider; (1d) an electrical combiner for combining the first electrical broadcast signal

with a second electrical, analog broadcast radio-frequency signal (1e) of a second service provider; (1f) a first optical transmitter for modulating an analog optical carrier (1g) having a first wavelength (1h) with the combined first and second electrical, analog broadcast radio-frequency signals; (1i) a first optical waveguide coupled to the data service hub for receiving analog optical carrier and propagating it towards a subscriber; (1j) a second optical transmitter for modulating (1k) a digital optical carrier (1l) having a third wavelength (1m) with a digital data signal; (1n) a second optical waveguide coupled to the data service hub for receiving the digital optical carrier and propagating it towards a subscriber; and (1o) a third optical waveguide for communicating the analog optical carrier and digital optical carrier to a subscriber optical interface; (2) the subscriber optical interface comprising (3) a service provider selection device (4) for choosing one of the analog optical carriers, as recited in amended independent Claim 34.

Similar to amended Claim 1, Claim 34 describes a combination that includes (1) a data service hub comprising: (1b) of a first electrical, analog broadcast radio-frequency signal (1c) of a first service provider; (1d) an electrical combiner for combining the first electrical broadcast signal with a second electrical, analog broadcast radio-frequency signal (1e) of a second service provider; (1f) a first optical transmitter for modulating an analog optical carrier (1g) having a first wavelength (1h) with the combined first and second electrical, analog broadcast radio-frequency signals; and (1j) a second optical transmitter for modulating (1k) a digital optical carrier (1l) having a second wavelength (1m) with a digital data signal. As noted above, none of the prior art references relied upon by the Examiner teach multiple service providers for modulating separate analog optical carriers in combination with a separate optical carrier for digital data.

In light of the differences between Claim 34 and the Bodeep, Woodward, Schemmann, Parsay, and Chambers references mentioned above, one of ordinary skill in the art recognizes that the combination proposed by the Examiner cannot anticipate or render obvious the recitations as set forth in amended independent Claim 34. Accordingly, consideration and allowance of amended independent Claim 34 are respectfully requested.

Independent Claim 41

It is respectfully submitted that the Bodeep, Woodward, Schemmann, Parsay, and Chambers references, individually or in view of each other, fail to describe, teach, or suggest the combination of: (1) generating a first electrical, analog broadcast radio-frequency signal (2) with a first service provider; (3) translating a frequency range of a second electrical, analog broadcast radio-frequency signal of (4) a second service provider; (5) combining the first and second electrical, analog broadcast radio-frequency signals (6) at the data service hub; (7) modulating an analog optical carrier (8) having a first wavelength (9) with the first and second electrical, analog broadcast radio-frequency signals (10) at the data service hub; (11) propagating the analog optical carriers through a first optical waveguide towards a subscriber; (12) modulating a digital optical carrier (13) having a second wavelength (14) with a digital data signal (15) at the data service hub; (16) propagating the digital optical carrier through a second optical waveguide towards a subscriber; and (17) selecting one of the analog optical carriers (18) at a subscriber optical interface, as recited in amended independent Claim 41.

Similar to amended Claim 1, Claim 41 describes a combination that includes (1) generating a first electrical, analog broadcast radio-frequency signal (2) with a first service provider; a second electrical, analog broadcast radio-frequency signal of (4) a second service provider; (7) modulating an analog optical carrier (8) having a first wavelength (9) with the first and second electrical, analog broadcast radio-frequency signals (10) at the data service hub; and (12) modulating a digital optical carrier (13) having a second wavelength (14) with a digital data signal (15) at the data service hub. As noted above, none of the prior art references relied upon by the Examiner teach multiple service providers for modulating separate analog optical carriers in combination with a separate optical carrier for digital data.

In light of the differences between Claim 41 and the Bodeep, Woodward, Schemmann, Parsay, and Chambers references mentioned above, one of ordinary skill in the art recognizes that the combination proposed by the Examiner cannot anticipate or render obvious the recitations as set forth in amended independent Claim 41. Accordingly, consideration and allowance of amended independent Claim 41 are respectfully requested.

Independent Claim 48

It is respectfully submitted that the Bodeep, Woodward, Schemmann, Parsay, and Chambers references, individually or in view of each other, fail to describe, teach, or suggest the combination of: (1) a data service hub comprising: (1a) a first optical transmitter for modulating (1b) a first analog optical carrier (1c) having a first wavelength (1d) with a first electrical broadcast radio-frequency signal (1e) of a first service provider, the first electrical broadcast radio-frequency signal (1f) having a first frequency range occupied by analog broadcast radio-frequency signals and a second frequency range occupied by digital broadcast radio-frequency signals; (1g) a second optical transmitter for modulating (1h) a second analog optical carrier (1i) having a second wavelength (1j) with a second electrical broadcast radio-frequency signal (1k) of a second service provider, (1l) the second electrical broadcast radio-frequency signal (1m) having a first frequency range occupied by digital broadcast radio-frequency signals and a second frequency range occupied by analog broadcast radio-frequency signals, (1n) the frequency ranges of the second electrical broadcast radio-frequency signal being opposite to the frequency ranges of the first electrical radio-frequency broadcast signal at least in some channels; (1o) a combiner for mixing the first and second analog optical carriers; (1p) a second optical transmitter (1q) for modulating a digital optical carrier (1r) having a third wavelength (1s) with a digital data signal; (1t) an optical waveguide for communicating the first and second analog optical carriers and digital optical carrier from the data service hub to a subscriber optical interface, (2) the subscriber optical interface comprising (3) a service provider selection device, as recited in amended independent Claim 48.

Similar to Claim 1, Claim 48 describes a combination that includes (1a) a first optical transmitter for modulating (1b) a first analog optical carrier (1c) having a first wavelength (1d) with a first electrical broadcast radio-frequency signal (1e) of a first service provider; (1g) a second optical transmitter for modulating (1h) a second analog optical carrier (1i) having a second wavelength (1j) with a second electrical broadcast radio-frequency signal (1k) of a second service provider; (1p) a third optical transmitter (1q) for modulating a digital optical carrier (1r) having a third wavelength (1s) with a digital data signal. As noted above, none of the prior art references relied upon by the Examiner teach multiple service providers for modulating separate analog optical carriers in combination with a separate optical carrier for digital data.

In light of the differences between Claim 48 and the Bodeep, Woodward, Schemmann, Parsay, and Chambers references mentioned above, one of ordinary skill in the art recognizes that the combination proposed by the Examiner cannot anticipate or render obvious the recitations as set forth in amended independent Claim 48. Accordingly, consideration and allowance of amended independent Claim 48 are respectfully requested.

Independent Claim 54

It is respectfully submitted that the Bodeep, Woodward, Schemmann, Parsay, and Chambers references, individually or in view of each other, fail to describe, teach, or suggest the combination of: (1) selecting a first frequency range for (2) a first electrical broadcast radio-frequency signal (3) of a first service provider; (4) selecting a second frequency range (5) for a second electrical broadcast radio-frequency signal (6) of a second service provider that is different from the first frequency range; (7) modulating a first analog optical carrier (8) having a first wavelength (9) with the first electrical broadcast signal (10) at a data service hub; (11) modulating a second analog optical carrier (12) having a second wavelength (13) with the second electrical broadcast signal at the data service hub; (14) modulating a digital optical carrier (15) having a third wavelength (15) with a digital data signal (16) at the data service hub; (17) propagating the first and second analog optical carriers and digital optical carrier through one optical waveguide towards a subscriber; and (17) selecting one of the analog optical carriers (18) at the subscriber, as recited in amended independent Claim 54.

Similar to Claim 1, Claim 54 describes a combination that includes (2) a first electrical broadcast radio-frequency signal (3) of a first service provider; (5) a second electrical broadcast radio-frequency signal (6) of a second service provider that is different from the first frequency range; (7) modulating a first analog optical carrier (8) having a first wavelength (9) with the first electrical broadcast signal (10) at a data service hub; (11) modulating a second analog optical carrier (12) having a second wavelength (13) with the second electrical broadcast signal at the data service hub; and (14) modulating a digital optical carrier (15) having a third wavelength (15) with a digital data signal (16) at the data service hub. As noted above, none of the prior art references relied upon by the Examiner teach multiple service providers for modulating separate analog optical carriers in combination with a separate optical carrier for digital data.

In light of the differences between Claim 54 and the Bodeep, Woodward, Schemmann, Parsay, and Chambers references mentioned above, one of ordinary skill in the art recognizes that the combination proposed by the Examiner cannot anticipate or render obvious the recitations as set forth in amended independent Claim 54. Accordingly, consideration and allowance of amended independent Claim 54 are respectfully requested.

Independent Claim 61

It is respectfully submitted that the Bodeep, Woodward, Schemmann, Parsay, and Chambers references, individually or in view of each other, fail to describe, teach, or suggest the combination of: (1) generating a first and second analog broadcast radio-frequency signals (2) from respective first and second service providers; (3) locking a phase of the second analog broadcast radio-frequency signal relative to a phase of the first analog broadcast radio-frequency signal; (4) modulating a first analog optical carrier (5) having a first wavelength (6) with the first analog broadcast radio-frequency signal (7) at a data service hub; (8) modulating a second analog optical carrier (9) having a second wavelength with (10) the second analog broadcast radio-frequency signal (11) at the data service hub; (12) modulating a digital optical carrier (13) having a third wavelength (14) with a digital data signal (15) at the data service hub; (16) propagating the first and second analog optical carriers and digital optical carrier through one optical waveguide towards a subscriber; and (17) selecting one of the analog optical carriers (18) at the subscriber, as recited in amended independent Claim 61.

Similar to amended Claim 1, Claim 61 describes a combination that includes (1) generating a first and second analog broadcast radio-frequency signals (2) from respective first and second service providers; (4) modulating a first analog optical carrier (5) having a first wavelength (6) with the first analog broadcast radio-frequency signal (7) at a data service hub; (8) modulating a second analog optical carrier (9) having a second wavelength with (10) the second analog broadcast radio-frequency signal (11) at the data service hub; and (12) modulating a digital optical carrier (13) having a third wavelength (14) with a digital data signal (15) at the data service hub. As noted above, none of the prior art references relied upon by the Examiner teach multiple service providers for modulating separate analog optical carriers in combination with a separate optical carrier for digital data.

In light of the differences between Claim 61 and the Bodeep, Woodward, Schemmann, Parsay, and Chambers references mentioned above, one of ordinary skill in the art recognizes that the combination proposed by the Examiner cannot anticipate or render obvious the recitations as set forth in amended independent Claim 61. Accordingly, consideration and allowance of amended independent Claim 61 are respectfully requested.

Independent Claim 65

It is respectfully submitted that the Bodeep, Woodward, Schemmann, Parsay, and Chambers references, individually or in view of each other, fail to describe, teach, or suggest the combination of: (1) generating a first and second electrical analog broadcast radio-frequency signals (2) from respective first and second service providers; (3) off setting a frequency of the second electrical analog broadcast radio-frequency signal relative to the first electrical analog broadcast radio-frequency signal by a predetermined amount; (4) modulating a first analog optical carrier (5) having a first wavelength with the first electrical analog broadcast radio-frequency signal (6) at a data service hub; (7) modulating a second analog optical carrier (8) having a second wavelength (9) with the second electrical analog broadcast radio-frequency signal (10) at the data service hub; (10) modulating a digital optical carrier (11) having a third wavelength (12) with a digital data signal (13) at the data service hub; (14) propagating the first and second analog optical carriers and digital optical carrier through one optical waveguide (15) towards a subscriber; and (16) selecting one of the analog optical carriers (17) at the subscriber, as recited in amended independent Claim 65.

Similar to amended Claim 1, Claim 65 describes a combination that includes (1) generating a first and second electrical analog broadcast radio-frequency signals (2) from respective first and second service providers; (4) modulating a first analog optical carrier (5) having a first wavelength with the first electrical analog broadcast radio-frequency signal (6) at a data service hub; (7) modulating a second analog optical carrier (8) having a second wavelength (9) with the second electrical analog broadcast radio-frequency signal (10) at the data service hub; and (10) modulating a digital optical carrier (11) having a third wavelength (12) with a digital data signal (13) at the data service hub. As noted above, none of the prior art references relied upon by the Examiner teach multiple service providers for modulating separate analog optical carriers in combination with a separate optical carrier for digital data.

In light of the differences between Claim 65 and the Bodeep, Woodward, Schemmann, Parsay, and Chambers references mentioned above, one of ordinary skill in the art recognizes that the combination proposed by the Examiner cannot anticipate or render obvious the recitations as set forth in amended independent Claim 65. Accordingly, consideration and allowance of amended independent Claim 65 are respectfully requested.

Independent Claim 69

It is respectfully submitted that the Bodeep, Woodward, Schemmann, Parsay, and Chambers references, individually or in view of each other, fail to describe, teach, or suggest the combination of: (1) a first data service hub for supplying a first set of video services (1a) from a first service provider comprising: (1b) a first optical transmitter for modulating (1c) a first analog optical carrier (1d) having a first wavelength with (1e) a first electrical analog broadcast radio-frequency signal; (1f) a second optical transmitter for modulating (1g) a first digital optical carrier (1h) having a second wavelength (1i) with a first electrical digital data signal; (2) a second data service hub for supplying a second set of video services (2a) from a second service provider comprising: (2b) a third optical transmitter for modulating (2c) a second analog optical carrier (2d) having a third wavelength with (2e) a second electrical analog broadcast radio-frequency signal; (2f) a fourth optical transmitter for modulating (2g) a second digital optical carrier (2h) having a fourth wavelength (2i) with a second electrical digital data signal; (3)an optical waveguide communicating the first, second, third, and fourth optical carriers between the first data service hub and the second data service hub, as recited in amended independent Claim 69.

Similar to amended Claim 1, Claim 69 describes a combination that includes supplying a first set of video services (1a) from a first service provider comprising: (1b) a first optical transmitter for modulating (1c) a first analog optical carrier (1d) having a first wavelength with (1e) a first electrical analog broadcast radio-frequency signal; (1f) a second optical transmitter for modulating (1g) a first digital optical carrier (1h) having a second wavelength (1i) with a first electrical digital data signal; supplying a second set of video services (2a) from a second service provider comprising: (2b) a third optical transmitter for modulating (2c) a second analog optical carrier (2d) having a third wavelength with (2e) a second electrical analog broadcast radio-frequency signal; and (2f) a fourth optical transmitter for modulating (2g) a second digital optical

carrier (2h) having a fourth wavelength (2i) with a second electrical digital data signal. As noted above, none of the prior art references relied upon by the Examiner teach multiple service providers for modulating separate analog optical carriers in combination with a separate optical carrier for digital data.

In light of the differences between Claim 69 and the Bodeep, Woodward, Schemmann, Parsay, and Chambers references mentioned above, one of ordinary skill in the art recognizes that the combination proposed by the Examiner cannot anticipate or render obvious the recitations as set forth in amended independent Claim 69. Accordingly, consideration and allowance of amended independent Claim 69 are respectfully requested.

Independent Claim 72

It is respectfully submitted that the Bodeep, Woodward, Schemmann, Parsay, and Chambers references, individually or in view of each other, fail to describe, teach, or suggest the combination of: (1) modulating a first analog optical carrier (2) having a first wavelength (3) with a first electrical analog broadcast radio-frequency signal (4) from a first service provider (5) at a data service hub; (6) modulating a second analog optical carrier (7) having a second wavelength (8) with the second electrical analog broadcast radio-frequency signal (9) from a second service provider (10) at the data service hub; (11) modulating a digital optical carrier (12) having a third wavelength (13) with a digital electrical data signal (14) at the data service hub; (15) propagating the first and second analog optical carriers and digital optical carrier through separate optical waveguides away from the data service hub; (16) combining the first and second analog optical carriers together with the digital optical carrier; and (17) propagating the combined optical carriers through one optical waveguide (18) towards a subscriber, as recited in amended independent Claim 72.

Similar to Claim 1, Claim 72 describes a combination that includes (1) modulating a first analog optical carrier (2) having a first wavelength (3) with a first electrical analog broadcast radio-frequency signal (4) from a first service provider (5) at a data service hub; (6) modulating a second analog optical carrier (7) having a second wavelength (8) with the second electrical analog broadcast radio-frequency signal (9) from a second service provider (10) at the data service hub; and (11) modulating a digital optical carrier (12) having a third wavelength (13) with a digital electrical data signal (14) at the data service hub. As noted above, none of the

prior art references relied upon by the Examiner teach multiple service providers for modulating separate analog optical carriers in combination with a separate optical carrier for digital data.

In light of the differences between Claim 72 and the Bodeep, Woodward, Schemmann, Parsay, and Chambers references mentioned above, one of ordinary skill in the art recognizes that the combination proposed by the Examiner cannot anticipate or render obvious the recitations as set forth in amended independent Claim 72. Accordingly, consideration and allowance of amended independent Claim 72 are respectfully requested.

Dependent Claims 2-5, 7-8, 10-13, 15, 17-25, 27-33, 35-40, 42-47, 49-53, 55-60, 62-64, 66-68, 70-71, and 73-75

The Applicants respectfully submit that the above-identified dependent claims are allowable because the independent claims from which they depend are patentable over the cited references. The Applicants also respectfully submit that the recitations of these dependent claims are of patentable significance.

In view of the foregoing, the Applicants respectfully request that the Examiner withdraw the pending rejections of dependent Claims 2-5, 7-8, 10-13, 15, 17-25, 27-33, 35-40, 42-47, 49-53, 55-60, 62-64, 66-68, 70-71, and 73-75.

CONCLUSION

The foregoing is submitted as a full and complete response to the Office Action mailed on December 27, 2006. The Applicants and the undersigned thank Examiner Bello for consideration of these remarks. The Applicants has amended the claims to overcome the prior art. The Applicants respectfully submits that the present application is in condition for allowance. Such action is hereby courteously solicited.

If the Examiner believes that there are any issues that can be resolved by a telephone conference, or that there are any formalities that can be corrected by an Examiner's amendment, please contact the undersigned in the Atlanta Metropolitan area (404) 572-2884.

Respectfully submitted,

/SPW/
Steven P. Wigmore
Reg. No. 40,447
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King & Spalding LLP
1180 Peachtree Street, N.E.
Atlanta, Georgia 30309-3521
Telephone: (404) 572.4600
K&S File No. 08286-105016